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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,241	12/01/2003	Xiang-Dong Mi	86914KNM	1951

7590 09/28/2006  
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EXAMINER

CHOW, DOON Y

ART UNIT PAPER NUMBER

2629

DATE MAILED: 09/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/725,241	<b>Applicant(s)</b> MI ET AL.	
	<b>Examiner</b> Dennis-Doon Chow	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 December 2003.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-35 is/are rejected.
- 7) ☒ Claim(s) 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                       |                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                           | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-6, 16-22, and 26-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi (2002/0005827).

Regarding to claims 1 and 26, Kobayashi discloses an apparatus and a method for writing an image on a liquid crystal display of the type having a layer of cholesteric liquid crystal material ([0008]) disposed between a pair of unpatterned conductors (see Fig. 4) and a light absorbing layer (52 and 50, Fig. 4) for forming an image wise pattern in response to an image wise pattern of light, comprising: means for applying a first voltage to the conductors (Figs. 1 and 2; [0068] to [0073]); means for applying a second voltage different from the first voltage to the conductors after applying the first voltage, wherein the first and second voltages are non-zero (Figs. 1 and 2; [0068] to [0073]); and means for exposing the liquid crystal display to the image wise pattern of light ([0043]).

Kobayashi does not explicitly disclose the wise pattern is a wise thermal pattern. However, Kobayashi discloses forming the image wise pattern in response to an image wise pattern of light. Since the light is generated from a light source (26, Fig. 8) which

generates heat at the time, it would have been obvious to one of ordinary skill in the art that the image wise pattern is an image wise thermal pattern.

Regarding to claims 2-4 and 27, Kobayashi further discloses exposing the liquid crystal display the image wise pattern of light prior the application of the first voltage, during the application of the first voltage, and during the application of the second voltage ([0076] to [0087]).

Regarding to claims 5 and 28, Kobayashi further discloses the second voltage is higher than the first voltage (Figs. 1 and 2; [0068] to [0073]).

Regarding to claims 6 and 29, wherein the first voltage is effective to drive the cholesteric liquid crystal material which inherently comprises a focal conic state.

Regarding claim 16, Kobayashi further discloses the duration of the second voltages less than 2 milliseconds ([0080]).

Regarding to claims 17-19, and 30-32, Kobayashi further discloses a liquid crystal masking device (24, Fig. 8) and a flash lamp (26, Fig. 8). The masking device is electrically controlled by a control unit (14, Fig. 8) to define the image wise pattern of light.

Regarding to claims 20 and 33, Kobayashi further discloses the cholesteric liquid crystal layer is a polymer dispersed layer ([0008], [0128]).

Regarding to claims 21 and 34, Kobayashi does not explicitly disclose the polymer is gelatin. However, it is well known in the art to use a gelatin polymer as the polymer dispersed layer. Thus, it would have been obvious to one of ordinary skill in the

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art to use the known gelatin polymer as the polymer dispersed layer in Kobayashi's apparatus because this is how a cholesteric liquid crystal layer is formed.

Regarding to claims 22 and 35, Kobayashi further discloses the first and second voltages are generated by bipolar waveforms that have the same amplitudes and different duty cycles (Figs. 1 and 2).

3. Claims 7-10 12-15 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi as applied to claims 1-6, 16-22, and 26-35 above, and further in view of Yang et al. (6154190).

Kobayashi does not disclose a third, fourth, and fifth voltages.

Yang, in the same display field, discloses an apparatus and a method for writing an image on a liquid crystal display comprising a third, fourth, and fifth voltages (see Figs. 5-6, 11, 14-15, 19). Each of the voltages is different from each other.

In light of Yang, it would have been obvious to one of ordinary skill in the art to use Yang's voltages in Kobayashi's apparatus for writing an image on the liquid crystal display. This would have been obvious because it allows the apparatus to generate different image signals.

#### ***Allowable Subject Matter***

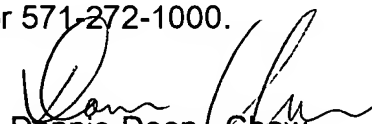
4. Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis-Doon Chow whose telephone number is 571-272-7767. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on 571-272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Dennis-Doon Chow  
Primary Examiner  
Art Unit 2629

D. Chow  
September 25, 2006